II. Remarks

Claims 3-6 and 9-15 are rejected and pending in this application. By this paper, Applicants present arguments that the existing claims are patentably distinct from the Examiner's cited references. Reconsideration and a withdrawal of all rejections are respectfully requested.

Rejections Under 35 U.S.C. § 103(a)

Rejections Under *Fletcher* in view of *Biltgen*

Responsive to the rejections of claims 3 and 6 under 35 U.S.C. § 103(a) based on U.S. Patent No. 5,903,965 issued to Fletcher et al. (hereinafter "*Fletcher*") in view of U.S. Patent No. 5,549,764 issued to Biltgen et al. (hereinafter "*Biltgen*"), the combined arts do not teach or suggest all the elements of independent claim 6. For example, claim 6 of the present application recites an "*isotropic surface* finish" on the external splines and a "*coating* applied to the isotropic surface finish to *reduce friction* during the telescopic movement" (emphasis added). *Fletcher*, on the other hand, expressly teaches a telescoping torque-transmitting shaft in which a coating of low friction material, such as a nylon, is applied to the "*cleaned and primed*" external splines of a torque transfer member (emphasis added; see col. 4, lines 20-60).

Specifically, *Fletcher* teaches that the "initial *cleaning* operation" is "usually performed on at least the splines of the tube shaft by *mechanical abrasion*" which involves a "*grit blasting* process" (emphasis added; col. 4, lines 34-41). Applicants further note that, as taught in U.S. Patent No. 5,503,481 and expressly incorporated by reference in the present application, an "isotropic surface finish" is a surface finish characterized by "extremely shallow irregularities that are nondirectional" and "very low average asperity slopes and likewise a very low plasticity indexes" ('481 patent Abstract, at lines 3-6; see also, col. 2, lines 28-38 (describing that isotropic surface finish is achieved by virtue of a further finishing step, after the surface is initially machined by grinding to achieve the desired profiles)). Therefore, *Fletcher*'s requirement of a "grit blasting process" prior to the application of the low friction

BRINKS HOFER GILSON & LIONE
PO Box 10395

coating is fundamentally different from the "isotropic surface finish" of claim 6. In fact, *Fletcher*'s "grit blasting process" would render the "isotropic surface finish" of the present invention moot.

Additionally, *Fletcher* teaches that the coating is "shaped" in a subsequent operation, using an annular die, "to precisely conform to the internal splines" of the other member (col. 5, lines 60-65). Because *Fletcher* relies upon the "somewhat fluid," subsequently "shaped" coating, rather than a precisely-machined (underlying) external spline, to achieve "precise conformance with the splines 22a of the slip yoke 22" (col. 6, lines 59-61), *Fletcher* fails to provide any motivation or suggestion to incorporate the special "isotropic surface finish" of the present invention on its externally-splined torque transfer member. Further, the Examiner's asserted combination of *Fletcher* and *Biltgen* begs the question of why one of ordinary skill would be motivated to generate a costly isotropic surface finish on a torque transfer member, only to thereafter use a "grit blasting process" and subsequently "shape" a "somewhat fluid" coating using an annular die (thereby substantively rendering moot the contributions of the isotropic surface finish to the resulting telescoping fit).

Applicants further note that although *Biltgen* teaches applying a coating to the "isotropic hard carbide surface" (col. 6, line 61), the coating material does not teach or suggest any capability to "*reduce friction*" as recited in claim 6 of the present application. Indeed, *Biltgen* expressly requires that the "coating material selected should have a *hardness* greater than about 1200 Kg/mm" and primary purpose of the coating is to achieve "*hardness and temperature resistance*" (emphasis added; col. 6, lines 43-48). *Biltgen* further teaches that the coating be a "*hard coating* preferably selected from one of the carbides, nitrides, borides and carbonitrides of chromium, titanium, aluminum and boron, preferably boron carbide" (emphasis added; col. 6, lines 36-49). Therefore, the coating taught by *Biltgen* is distinctly different from coatings made of nylon or tungsten disulfide for friction-reducing purposes. Further, even if the coating in *Biltgen* can be a friction-reducing coating, the requirement that the coating thickness be "not greater than about 3 microns in thickness" (col. 6, lines 41-42) would frustrate the stated objective in *Fletcher* of providing a post-application "shaped" conformal coating.

Applicants respectfully submit that the nature of *Fletcher*'s divergent teaching, coupled with the different coating problem-solution taught by *Biltgen*, strongly shows that a prima facie case of obviousness with respect to claim 6, as well as its dependent claim 3 has not been made.

In view of the foregoing, the reversal of the rejections of claims 3 and 6 as unpatentable over the combination of *Fletcher* and *Biltgen* is respectfully requested.

Rejections Under *Fletcher* and *Biltgen* and further in view of Japan Publication

Responsive to the rejections of claims 4 and 5 under 35 U.S.C. § 103(a) based on *Fletcher* and *Biltgen* further in view of Japan Publication (JP401304196A), the combined arts do not teach or suggest all the elements of claims 4 and 5.

As noted above in connection with the discussion of the patentability of claim 6, the asserted combination of *Fletcher* and *Biltgen* neither teaches nor suggests a telescoping shaft wherein the external splines of one torque-transmitting members have an isotropic surface finish beneath a friction-reducing coating. Further, even if *Fletcher* is improperly modified through hind-sight reconstruction to envision an isotropic surface finish beneath its applied coating, if Japan Publication's thin, sputtered layer of tungsten disulfide were substituted for *Fletcher*'s nylon coating, *Fletcher* would have to be further modified to eliminate its "shaping" step (as taught at col. 5, ll. 55-60) – and *Fletcher*'s stated objective of providing a post-application "shaped" conformal coating specifically frustrated – because the tungsten disulfide layer is neither "somewhat fluid" once deposited on the external splines (as required by *Fletcher*, e.g., at col. 6, ll. 59-61) nor particularly amenable to subsequent "shaping" (as taught by *Fletcher*, e.g., at col. 5, ll. 55-60). Such a wholesale reconstruction of *Fletcher* is clearly improper and, hence, Appellants respectfully submit that the subject matter recited in claim 4, as well as its dependent claim 5, is patentable over the asserted combination of *Fletcher, Biltgen*, and Japan Publication.

In view of the foregoing, the reversal of the rejections of claims 4 and 5 as unpatentable over the combination of *Fletcher, Biltgen*, and Japan Publication is respectfully requested.

Rejections Under *McClanahan* and *Biltgen* and further in view of *Lawrence*

Responsive to the rejections of claims 12-15 under 35 U.S.C. § 103(a) based on U.S. Patent No. 5,720,102 issued to McClanahan (hereinafter "*McClanahan*") and *Biltgen* further in view of U.S. Patent No. 2,163,981 issued to Lawrence (hereinafter "*Lawrence*") , the combined arts do not teach or suggest all the elements of independent claim 12. Specifically, *McClanahan* teaches applying a low-friction Nylon coating to the external splines of a telescoping driveline slip joint assembly, "where there are *selected areas of increased thickness* of the low friction coating which are integrally formed from the low friction coating and which provide means for enhancing the dynamic balancing of the drive line slip joint assembly" (emphasis added; col. 2, lines 63-67). Further, *McClanahan* teaches preparing the surface before applying the coating by "*grit blasting and sanding*" (col. 4, lines 65-67), resulting in a surface finish substantially different from Applicants' claimed "isotropic surface finish" recited in claim 12. Simply stated, like *Fletcher*, *McClanahan* teaches use of a relatively "unfinished" substrate with a rather dimensionally-"forgiving" coating and, hence, *McClanahan* provides absolutely no motivation for generating an isotropic surface finish on a torque transfer member, only to thereafter apply this coating with "selected areas of increased thickness." And, as noted above, because *Biltgen* is directed to a different problem-solution of "*hardness coating*" with coating thickness "not greater than about 3 microns in thickness", *Biltgen* similarly provides absolutely no motivation or suggestion to for one of ordinary skill to use present invention's isotropic surface finish in place of *McClanahan*'s grit blasted and sanded pre-coating surface.

Further, *Lawrence* does not directly disclose a suspension of vehicle wherein the external splines includes an isotropic surface finish, and a coating applied to the isotropic surface finish to reduce friction during the telescopic movement; wherein the coating is nylon, or tungsten disulfide. Appellants respectfully submit that the additional references fail to cure these basic deficiencies of *Lawrence* and, indeed, teach away from the asserted combination.

In view of the foregoing, the reversal of the final rejections of claims 12-15 as unpatentable over the combination of *Lawrence*, *McClanahan*, and *Biltgen* is respectfully requested.

Rejections Under *McClanahan* and *Biltgen* and in view of *Lawrence* and further in view of Japan Publication

Responsive to the rejections of claims 10 and 11 under 35 U.S.C. § 103(a) based on *McClanahan* and *Biltgen* and in view of *Lawrence* and further in view of Japan Publication, the combined arts do not teach or suggest all the elements of claims 10 and 11 (both depend from claim 12). As noted above in connection with the discussion of the patentability of claim 12, the asserted combination of *McClanahan* and *Biltgen* neither teaches nor suggests a telescoping shaft wherein the external splines of one torque-transmitting members have an isotropic surface finish beneath a friction-reducing coating.

Regarding the specific limitation added by dependent claim 10 that the coating be tungsten disulfide the application of a "a *very thin* layer of tungsten disulfide" applied to *McClanahan*'s external splines in place of its disclosed Nylon coating would defeat *McClanahan*'s stated objective of achieving a coating with "selected areas of *increased thickness* ... which provide means for enhancing the dynamic balancing of the drive line slip joint assembly." As such, such a substitution of tungsten disulfide for the disclosed nylon coating constitutes improper hindsight reconstruction of *McClanahan*. And dependent claim 11 adds the further limitation that the tungsten disulfide coating "measures less than approximately 10 microns thick" which, once again, is a particularly "thin" coating that fails to meet *McClanahan*'s stated objectives of "selected areas of increased thickness" and dynamic shaft balancing.

BRINKS HOFER GILSON & LIONE
PO Box 10395

Conclusion

In view of the foregoing, Applicants respectfully submit that claims 3-6 and 9-15 as amended are patentable over the art of record in this application, and the reconsideration of these claims is hereby respectfully requested.

Respectfully submitted,

April 11, 2005
Date

Eric J. Sosenko (Reg. No. 34,440)